

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date:	4/18/2011
State:	PENNSYLVANIA
County:	BRADFORD
API Number:	3701521237
Operator Name:	CHESAPEAKE APPALACHIA LLC
Well Name and Number:	ATGAS 2H
Longitude:	-76.710095
Latitude:	41.666349
Long/Lat Projection:	NAD27
Production Type:	Gas
True Vertical Depth (TVD):	6,741
Total Water Volume (gal)*:	1,565,298

NOTE: Because the information was provided to Pennsylvania regulators on April 20, 2011, Chesapeake requested that FracFocus publish the chemical composition used in the hydraulic fracturing process on the Atgas 2H well in Bradford County, Pennsylvania, prior to final completion operations as would be typical.

For more information, please go to:
<http://www.askchesapeake.com/MARCELLUS-SHALE/PA/Pages/information.aspx>

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by Mass)**	Maximum Ingredient Concentration in HF Fluid (% by Mass)**	Comments
Fresh Water		Carrier/Base Fluid				87.85900%	
Sand (Proppant)		Proppant				11.10203%	
Acid HCL	PUMPCO SERVICES	Acid	Hydrochloric Acid	007647-01-0	15.00%	0.04395%	
Ferriplex 40	PUMPCO SERVICES	Iron Control Agent	Water	007732-18-5	60.00%	0.00158%	
			Trisodium NTA	018662-53-8	40.00%	0.00105%	
			Sodium Sulfate	007757-82-6	2.00%	0.00005%	
			Sodium Hydroxide	001310-73-2	1.00%	0.00003%	
Plexhib 256	PUMPCO SERVICES	Corrosion Inhibitor	Methanol (Methyl Alcohol)	000067-56-1	60.00%	0.00044%	
			Ethoxylated Alcohols^ C14-15	068951-67-7	30.00%	0.00022%	
			Modified Thiourea Polymer	068527-49-1	30.00%	0.00022%	
			Propargyl Alcohol (2-Propynol)	000107-19-7	10.00%	0.00007%	
			Alkenes^ C>10 alpha-	064743-02-8	5.00%	0.00004%	
Plexslick 921	PUMPCO SERVICES	Friction Reducer	Water	007732-18-5	40.00%	0.05438%	
			Petroleum Distillate Hydrotreated Light	064742-47-8	35.00%	0.04758%	
			POLY(ACRYLAMIDE-co-ACRYLIC ACID	009003-06-9	28.00%	0.03807%	
			Polyethoxylated Alcohol Surfactants	N/A	7.00%	0.00952%	
Plexbreak 145	PUMPCO SERVICES	Non-Emulsifier	Water	007732-18-5	65.00%	0.00052%	
			2-Butoxyethanol (Ethylene Glycol Monobutyl Ether)	000111-76-2	15.00%	0.00012%	
			Methanol (Methyl Alcohol)	000067-56-1	15.00%	0.00012%	
			Coconut oil, Diethanolamide	068603-42-9	7.00%	0.00006%	
			Diethanolamine	000111-42-2	3.00%	0.00002%	
B84***	X CHEM	Anti-Bacterial Agent	Glutaraldehyde (Pentanediol)	000111-30-8	27.00%	0.01084%	

	OILFIELD CHEMICALS						
			Didecyl Dimethyl Ammonium Chloride	007173-51-5	8.00%	0.00321%	
			Quaternary Ammonium Compound	068424-85-1	5.50%	0.00221%	
			Ethanol	000064-17-5	4.00%	0.00161%	
SC30W***	X CHEM OILFIELD CHEMICALS	Scale Inhibitor	Methanol (Methyl Alcohol)	000067-56-1	30.00%	0.00352%	
			Sodium polyacrylate	N/A	30.00%	0.00352%	

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** The remaining mass balance in products listed is water as confirmed by the chemical suppliers

All component information listed was obtained from the supplier' s Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration' s (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.

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